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(54)	APPARATUS AND METHOD FOR
	CALIBRATING VOLTAGE SPIKE
	WAVEFORMS FOR THREE-PHASE
	ELECTRICAL DEVICES AND SYSTEMS

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- (56)References Cited

U.S. PATENT DOCUMENTS

4,307,342 A	*	12/1981	Peterson 324/767
4,843,515 A	*	6/1989	Richman 361/58
4,926,285 A	*	5/1990	Reinhardt et al 361/230
5,463,315 A	*	10/1995	Grace et al 324/158.1

5,525,926 A	*	6/1996	Merritt 327/535
5,537,044 A			Stahl
5,623,215 A			Maytum
5,956,223 A			Banting 361/117
6.088,209 A			Sink 361/111
6,118,639 A			Goldstein 361/55
			Ho et al 703/18
			Estrela et al 361/113

^{*} cited by examiner

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ABSTRACT (57)

An apparatus and method for calibrating three-phase voltage spike waveforms used in testing three-phase electrical devices. The apparatus includes a circuit having a plurality of phase voltage lines and a ground line. Phase voltage outputs and a ground output are provided for connection to a device under test. A selection circuit selects one of the phase voltage lines and provides a synchronization voltage signal based on the other lines. A voltage spike generator is joined to the selection circuit for generating a voltage spike waveform synchronized with the voltage signal. Additional circuitry is joined to the voltage spike generator, the phase voltage lines and the outputs which applies the voltage spike waveform across the selected phase voltage line and the ground line.

10 Claims, 3 Drawing Sheets

